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**PATENT ABSTRACTS OF JAPAN**

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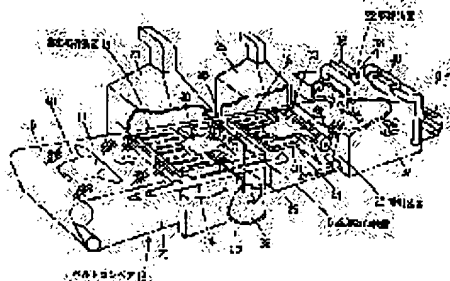
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**(54) PROCESSING SYSTEM AND METHOD FOR CLOTHING**

(57)Abstract:

PURPOSE: To provide the subject system ensuring desired chemical-affording treatment to be easily conducted on clothing, so designed as to set up such devices as for steam jet, chemical agent sprinkling, suction and remove extra chemical agent etc., and drying over the range for conveying the clothing, fabric etc.

CONSTITUTION: A clothing 40 is put on an air-permeable, liquid-permeable conveying member 12, fed into a 1st steam jet device 14 where the clothing 40 is sprayed with steam both from above and below, fed into a chemical agent sprinkler 16 where the clothing 40 is sprayed with both chemical agent and binder liquid both from above and below and infiltrated with the chemical agent owing to the moderate moisture content and high-temperature steam existing in the clothing. The resultant clothing is then fed into a 2nd steam jet device 18 where the clothing is sprayed with steam to uniformly distribute



the chemical agent throughout the clothing followed by the suction and removal of extra chemical agent and moisture from the clothing using a suction device 20. Next, the resultant clothing is dried in the drying chamber 37 of a drying device 22 to effect firm sticking of the chemical agent to the inside of the clothing through the binder, thereby ensuring the desired chemical agent to be afforded on the clothing in high efficiency. By this method, clothing can be easily afforded with any chemical agent such as an antimicrobial agent, softener or UV-cutting agent.

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**CLAIMS**

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[Claim(s)]

[Claim 1] The clothing processor which formed the conveyance member which conveys clothing and has permeability and dipping nature, the steam injection equipment which injects a steam in the clothing put on this conveyance member, the spraying equipment which sprinkles the drug solution with which predetermined drugs were blended with the conveyed clothing, the aspirator which removes an excessive drug solution and excessive moisture from the clothing on the above-mentioned conveyance member, and the dryer which dry the clothing on the above-mentioned conveyance member.

[Claim 2] The clothing processor according to claim 1 with which the steam injection equipment which sprays a steam on the above-mentioned clothing was formed in the belt travelling direction both sides of the above-mentioned spraying equipment.

[Claim 3] The process which puts clothing on a conveyance member with permeability and dipping nature, conveys it, injects a steam in the clothing put on this conveyance member, and is humidified and warmed, The chemical spray process which sprinkles the drug solution with which predetermined drugs were blended with the clothing with which the steam was injected, The clothing art which consists of a desiccation process which dries the process which carries out suction removal of an excessive drug solution and excessive moisture, and the clothing on the above-mentioned conveyance member from the steam jet process which sprays a steam on the clothing with which this drug solution was sprinkled further, and the clothing on the above-mentioned conveyance member.

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**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the clothing processor and art for performing an antibacterial treatment, antiallergic processing, etc. on the surface of clothing.

[0002]

[Description of the Prior Art] Conventionally, the method of performing an antibacterial treatment to clothing was in the condition of the ground before fibrous voice, or dyeing and flexible finishing before carrying out predetermined sewing, and was what soaks into an antimicrobial agent tub, extracts and is dried. Thus, clothes etc. are made after that, processing by the flexible processing agent etc. is performed further, predetermined finishing is performed and the fiber or the ground by which the antibacterial treatment was carried out is shipped.

[0003]

[Problem(s) to be Solved by the Invention] Although an antimicrobial agent tended to be attached to fiber since in the above-mentioned Prior art an antibacterial treatment is performed before performing dyeing and flexible processing to clothing, it was what must carry out the same processing in large quantities, and cannot perform management in small quantity.

Moreover, there was also a problem that an antibacterial treatment was not carried out in post-installation parts, such as a tape attached after sewing, and a furil fastener. Furthermore, after carrying out the antibacterial treatment before sewing, also when the antibacterial action itself became weaker by various kinds of processings after sewing, it was.

[0004] This invention was accomplished in view of the trouble of the above-mentioned Prior art, and aims at offering simply the desired clothing processor and desired art which can be processed certainly to clothing including the ground.

[0005]

[Means for Solving the Problem] The steam injection equipment which injects and heats a steam in the clothing which this invention prepared the conveyance member which conveys clothing, such as the ground before carrying out sewing of clothes or the clothes, and has permeability dipping nature, and was put on this conveyance member, The spraying equipment which sprinkles the drug solution with which predetermined drugs were blended with the clothing with which the steam was injected, It is the clothing processor which formed the second steam injection equipment which sprays a steam on the clothing with which this drug solution was sprinkled further, the aspirator which removes an excessive drug solution and excessive moisture from the clothing on the above-mentioned conveyance member, and the dryer which dries the clothing on the above-mentioned conveyance member by heating ventilation etc.

[0006] Moreover, the process which this invention is carried on a conveyance member with permeability dipping nature, conveys clothing, injects a steam in the clothing put on this conveyance member, and is humidified and warmed, The chemical spray process which sprinkles the drug solution with which predetermined drugs were blended with the clothing with which the steam was injected, It is the clothing art which consists of a desiccation process which dries the process which carries out suction removal of an excessive drug solution and excessive moisture, and the clothing on the above-mentioned conveyance member from the steam jet process which sprays a steam on the clothing with which this drug solution was sprinkled further, and the clothing on the above-mentioned conveyance member.

[0007]

[Function] Predetermined drugs are sprinkled by the whole clothing, such as the ground after dyeing, and clothes after sewing, drugs spread round all, such as a body of clothing, and an accessory, uniformly, and, as for the clothing processor and art of this invention, desired processing is performed.

[0008]

[Example] Hereafter, one example of this invention is explained based on a drawing. As the clothing processor of this example is shown in drawing 1 , the band conveyor 12 on which it was built over the belt 10 of the shape of a network which is a conveyance member with permeability and dipping nature is formed. The product injection section 11, the first steam injection equipment 14, chemical spray equipment 16, the second steam injection equipment 18, the aspirator 20, and the dryer 22 are formed in this band conveyor 12 from the travelling direction this side of a belt 10.

[0009] For a start, the second steam injection equipment 14 and 18 is made by the same structure, and two or more injection nozzles 24 are formed in the rear-face side of a belt 10 to the limit of the width of face of a belt 10. The piping 26 connected to the steamy generating boiler which is not illustrated is connected to the injection nozzle 24. Moreover, jet pipes 23 and 25 are respectively formed above the belt 10 of the second steam injection equipment 14 and 18 for a start.

[0010] For a start, between the second steam injection equipment 14 and 18, chemical spray equipment 16 is arranged and the spraying nozzles 28 and 29 are formed respectively at the front-face [ of a belt 10 ], and rear-face side. The spraying nozzles 28 and 29 are formed in the range of full [ of a belt 10 ] possible [ spraying of drugs ] according to the oscillation device

which is not illustrated. The chemical spray nozzles 28 and 29 are connected to the drugs tank 32 which stored drugs in the state of pressurization through piping 30.

[0011] Next to [ of the second steam injection equipment 18 / of a belt 10 ] the travelling direction, the aspirator 20 connected to the pump which is not illustrated is arranged. A belt 10 is formed almost to the limit of width of face, and the suction section 33 of an aspirator 20 is formed possible [ suction ] at full [ of a belt 10 ].

[0012] And an aspirator 20 is adjoined and the dryer 22 is arranged. It has the heater section 36 and a blower 38, as a belt 10 is surrounded, drying room 37 is formed, and the dryer 22 is formed so that hot blast may circulate. The temperature of hot blast is 110 - 140 degrees. The temperature of about 130 degrees is the optimal at within the limits.

[0013] An operation of the clothing processor of this example of operation is described below. First, a band conveyor 12 is operated and clothing 40 is carried on the belt 10 of the product injection section 11. Clothing 40 is opened, and as it does not lap as much as possible, it is carried. The clothing 40 on a belt 10 is sent to the first steam injection equipment 14 with a belt 10, and a steam is injected from the upper and lower sides. Since a belt 10 is a network-like at this time, a steam is fully injected also at the rear-face side of clothing 40. A steam is a hot steam of 100 - about 140 degrees.

[0014] Furthermore, with migration of a belt 10, clothing 40 is sent to chemical spray equipment 16, and drugs are sprinkled from the upper and lower sides. The drugs sprinkled here mix with a binder the particle (microcapsule) of urethane resin which sank in sagebrush extractives for example, with anti-[ antibacterial ] atopy, hinokitiol, etc. in a solvent.

[0015] Since sufficient steam for clothing 40 is injected and moderate moisture and a hot steam exist in clothing 40, the sprinkled drugs sink in into clothing easily. After this, further, clothing 40 is sent to the second steam injection equipment 18, and the sprinkled drugs are more uniformly spread into clothing 40. And clothing 40 is sent to an aspirator 20 and suction removal of drugs and an excessive steam, and excessive moisture is carried out.

[0016] Then, the drugs particle 44 and the binder component 45 adhere to fiber 46, and clothing 40 remains, as a belt 10 is sent in the drying room 37 of a dryer 22, and moisture and a solvent component are evaporated to it and it is shown in drawing 2 . Thus, even if the drugs particle 44 which adhered to the fiber of clothing 40 firmly repeats the wash trial by JIS 20 times, as shown in drawing 3 , it remains in fiber 46 certainly with the binder component 45. Drawing 2 and drawing 3 are the sketches of an electron micrograph which expanded the fiber of clothing 42 by 2350 times here. Thus, the binder component 45 joins at an elevated temperature by the steam or stoving at the fabric softener given to fiber 46, and it is considered because it will be in a firm adhesion condition that the binder component 45 adheres to the fiber 46 of clothing 40 firmly.

[0017] According to the clothing processor and art of this example, drugs can be uniformly sprinkled certainly in the clothing which is a product, and desired antibacterial effectiveness etc. can be attained in it. Since drugs are especially sprinkled for a product, drugs adhere also to the post-installation member of \*\*, or a fastener and others certainly, and when the member itself does bad influences, such as allergy, there is very big effectiveness like anti-atopy.

[0018] In addition, what has arranged steam injection equipment only to one side is sufficient as the clothing processor of this invention, and the desiccation whose desiccation approach of a dryer also depends only ventilation, and an air drying are sufficient as it. Moreover, the mesh-like pallet on a band conveyor besides the belt of a band conveyor is sufficient as the conveyance member of clothing, and a mesh-like pallet may be conveyed by migration means other than a belt. Moreover, the conveyance member of the hanger type which hangs and conveys clothing is sufficient.

[0019] Furthermore, after carrying and conveying clothing to a conveyance member where predetermined one is equipped, and performing processing by predetermined drugs, it may be made to perform set processing which extends the wrinkling which it is in the last processing

by the steam, and is set as an end product. Thereby, the second steam injection equipment can be carried out in combination.

[0020] moreover, the clothing processed -- others, a sheet, and the ground -- the very thing is sufficient and the object to process is not chosen. [ clothes ] Furthermore, the electrostatic-coating approach may not be used for the method of application besides pressurizing and injecting, and the approach is not asked.

[0021] Furthermore, finishing agents of the drugs to sprinkle, such as other softening agents besides being an antimicrobial agent etc., and UV cut agent, a silk particle, etc. are selectable to arbitration.

[0022]

[Effect of the Invention] According to the clothing processor and art of this invention, spraying of desired drugs is certainly possible on the clothes used as the ground or a product etc., and, moreover, drugs sink even into the interior of clothing certainly. Moreover, it is very efficient and processing of the request to clothing is [ that what is necessary is just to put clothing on a goods conveyance member ] possible.

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## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is the perspective view showing the clothing processor of one example of this invention.

[Drawing 2] It is the sketch of the microscope enlargement of the clothing to which drugs were applied by the clothing processor of this example.

[Drawing 3] It is the sketch of the microscope enlargement after carrying out the wash trial of the clothing to which drugs were applied by the clothing processor of this example.

[Description of Notations]

10 Belt (Conveyance Member)

12 Band Conveyor

14 18 Steam injection equipment

16 Chemical Spray Equipment

20 Aspirator

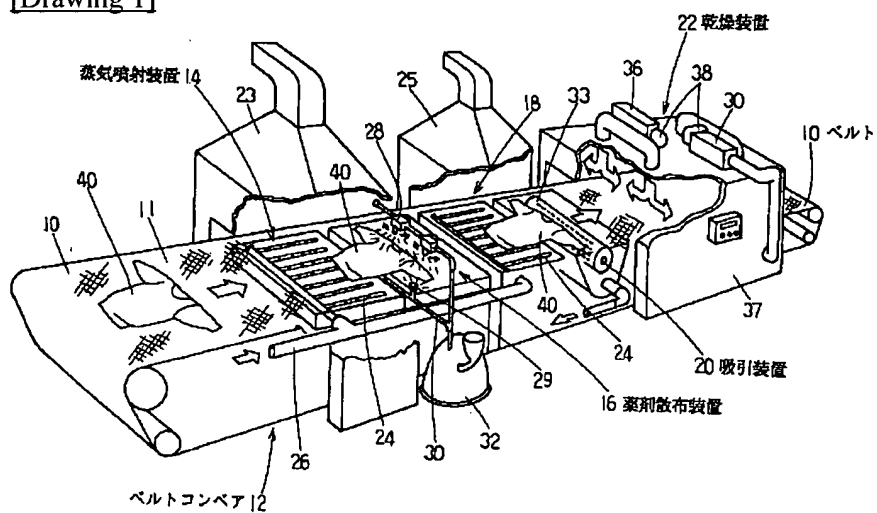
22 Dryer

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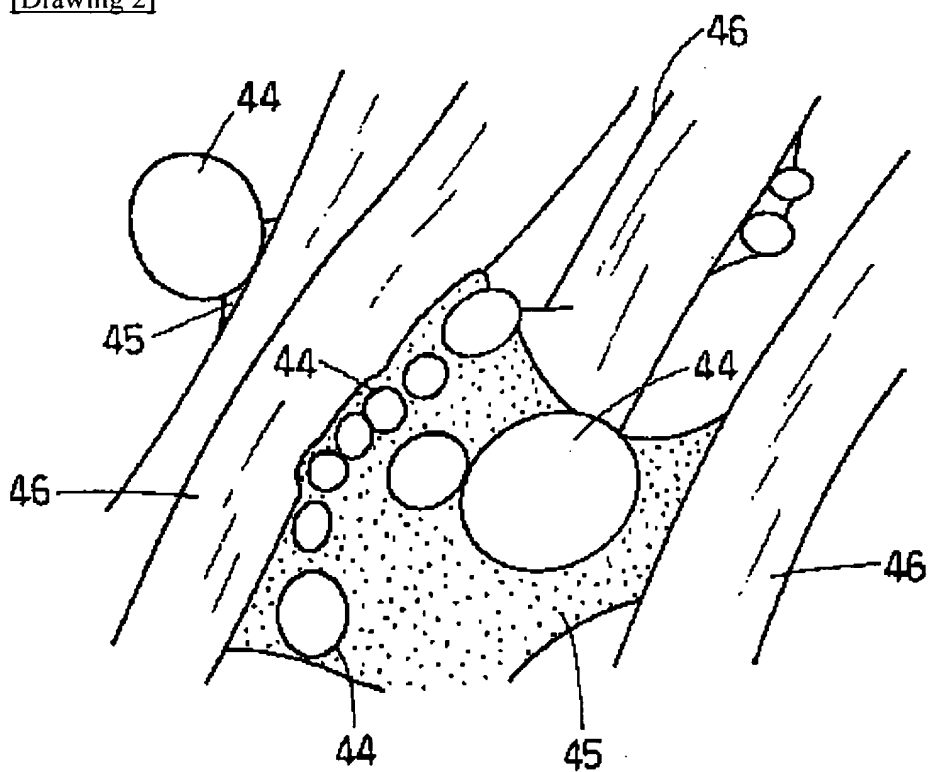
## DRAWINGS

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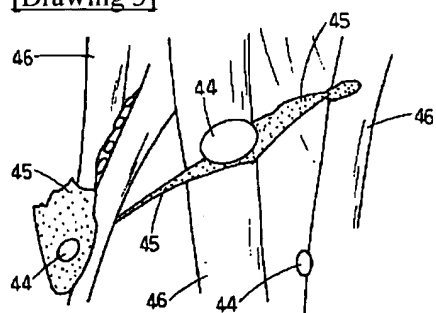
[Drawing 1]



[Drawing 2]



[Drawing 3]



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